Pea Pod and Single Pea Drawing: Easy Construction Guide

Original tasks 1, 2 / complete keys

Task 1

Construct a pea pod 8 cm long with a half-width of 1 cm. Mark two pea centers at 2 cm and 6 cm from the left end. Draw peas of 1.5 cm diameter. Describe the steps and check the spacing.

Answer: Centerline 8 cm, offset curves 1 cm each side, rounded tips. Pea centers at 2 cm and 6 cm. Circles 1.5 cm diameter. Spacing between centers is 4 cm, which is greater than pea diameter, so peas do not overlap.

Reason: The centerline defines the pod axis. Offsets create equal width. Pea centers are placed at measured distances. The 4 cm spacing exceeds the 1.5 cm diameter, leaving a gap.

Check: Measure the distance between pea centers (should be 4 cm) and the pea diameter (1.5 cm). Confirm the gap is 2.5 cm.

Task 2

Draw a single pea 2.5 cm diameter with light source upper left. Describe the highlight, core shadow, and cast shadow placement. Use a hypothetical cast shadow length of 1 cm.

Answer: Circle 2.5 cm diameter. Highlight at upper left (about 10 o'clock). Core shadow at lower right (about 4 o'clock). Cast shadow ellipse offset to lower right, length 1 cm.

Reason: The light source determines highlight and shadow positions. The cast shadow falls opposite the light source. The 1 cm length is a hypothetical example.

Check: Verify highlight and core shadow are on opposite sides. Check cast shadow is lower right and about 1 cm long.

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Original tasks 3, 4 / complete keys

Task 3

Draw a pod-opening variant for a 12 cm pod with three 2 cm peas centered at 3, 6, and 9 cm from the left end. The seam gap is 2.5 cm wide at the center, measured across the pod perpendicular to its centerline. Explain the visibility rule and whether the exact number of exposed peas can be determined from the given measurements; identify any missing opening dimension.

Answer: Draw a 12 cm bowed centerline and three 2 cm circles centered at 3, 6, and 9 cm. Show the seam opening as 2.5 cm wide across the pod at its center. That transverse width is larger than a pea's 2 cm diameter at that point, but the prompt gives no opening length along the pod and no widths at the other pea positions. Therefore an exact exposed-pea count cannot be determined. A pea is fully visible only where the opening spans its full 2 cm diameter both along and across the pod; otherwise draw only the visible arc or leave it hidden.

Reason: The given 2.5 cm value measures only across the pod. It does not say how far the gap extends along the centerline or whether its width remains large enough at centers 3, 6, and 9 cm, so visibility count is underdetermined.

Check: Confirm pea centers are 3, 6, and 9 cm with 2 cm diameters. Compare the stated 2.5 cm transverse width with 2 cm, then verify that no exact visibility count is claimed without the opening's longitudinal extent and local width at each pea.

Task 4

A student draws a pod with offset curves 1 cm and 2 cm from the centerline. Identify the mistake and describe a fix using a hypothetical half-width of 1.5 cm.

Answer: The offset curves are unequal, making the pod lopsided. Fix by redrawing both curves at 1.5 cm from the centerline and checking equidistance at three points.

Reason: Equal offsets create a symmetrical pod. Unequal offsets distort the shape. Measuring at multiple points ensures consistency.

Check: Measure the distance from centerline to each curve at the midpoint and near the ends; both should be 1.5 cm.

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Source rubric / reflection

- [ ] Pod shape uses a centerline with two offset curves that taper at the ends.
- [ ] Peas are consistent in size and spaced along the centerline.
- [ ] Seam line is continuous and follows the pod contour.
- [ ] Shading direction is consistent: highlight upper left, core shadow lower right, cast shadow lower right.
- [ ] Pod-opening variant, if drawn, keeps peas the same size and pod halves mirror the seam.
- [ ] Valid alternatives are accepted if the convention is clearly defined and internally consistent.

Reflection: What did you check, what did you change, and what will you try next?